

*An Obituary Notice of William E. DuBois. By Robert Patterson.*

*(Read before the American Philosophical Society, November 18, 1881.)*

William Ewing DuBois was born at Doylestown, Pennsylvania, December 15, 1810. Through his father, Rev. Uriah DuBois, he was descended from Louis DuBois, a French Huguenot of honorable extraction, who emigrated to America in 1660, seeking freedom of religious worship, and, in connection with others of his countrymen, formed the settlement of New Paltz, Ulster county, New York. Through his mother, Martha Patterson, daughter of Professor Robert Patterson, of the University of Pennsylvania, he inherited the Scotch-Irish element which has exerted so marked an influence in the development of our country.

The father of Mr. DuBois was a Presbyterian clergyman, in charge of churches in and near Doylestown, and was Principal of the Union Academy at that place, a classical school then and afterwards of high reputation. He was greatly respected, both as preacher and teacher. His death, at a comparatively early age, left a large family, in narrow circumstances, to be provided for. The kindness of friends, but above all the energy and devotion of the widowed mother, lightened the weight of this calamity. The subject of our notice was, at this time, but eleven years of age. His education, already begun at the academy under his father, was continued there under his successor, Rev. Samuel Aaron, and for a short time at the once noted school of John Gummere, Burlington, N. J.

The bright and studious mind of Mr. DuBois gathered every advantage from his opportunities, and although his early education did not extend beyond the schools named, he was well furnished in the classics and mathematics and in English literature. While yet a boy he developed a freedom and capacity as a writer quite remarkable; was a frequent contributor of articles to the county papers, and aided in conducting one of them.

His oldest brother was an eminent member of the bar, and it seemed fitting that Mr. DuBois should, under his guidance, adopt the law as his profession. He accordingly pursued the usual course, in the meantime aiding to support himself by literary work and conveyancing, and was admitted to practice in September, 1832. But it was not permitted him to prove whether he could attain reputation in that line. His course was arrested by a fatal obstacle. Always somewhat delicate in constitution, he was at this time attacked by a bronchial disorder, which adhered to him through life. It so far affected his voice as to unfit him for the legal profession, or any other requiring him publicly to address his fellow-men. To all human apprehension this was a calamity that dashed every hope of eminence, at least in any intellectual field. But as we now stand at the end of his career and review the steps by which he gained distinction, we rather persuade ourselves that it was a providence constraining him to a course of life in which every higher quality of his mind and character had

full play, while the physical affection, if it caused to himself some suffering, in no degree hindered his success. For, since a change of profession had become necessary, he accepted an appointment in the Mint at Philadelphia, and thus began the life-work by which his reputation was established and made firm.

Mr. DuBois entered the Mint in September, 1833, and was first employed in the office of the Director, Dr. Moore. In 1835, at the request of the Assayer, Mr. Jacob R. Eckfeldt, he was transferred to a more congenial position in the Assay Department. Here he continued for the remainder of his life. In 1836 he was appointed Assistant Assayer. In September, 1872, he succeeded Mr. Eckfeldt, as Assayer, and remained at the head of the department until his death, July 14, 1881, thus completing nearly forty-eight years of Mint service.

For the special branch of metallurgy in which Mr. DuBois thus engaged, we see that his previous training had not prepared him ; but doubtless he had been marked as having the intelligence, the carefulness and the concentration of mind required for this work, and he had in Mr. Eckfeldt, as instructor, a thorough master of the art. It is certain that Mr. DuBois early took rank as an accomplished assayer, and long before his death had reached the head of his profession.

I have referred to the association of Mr. Eckfeldt and Mr. DuBois, and it is fitting, before I proceed farther, to allude to the singular partnership in the labors of these two. The close intimacy made needful by their official relations, developed into warm friendship. The tie was made closer by the marriage of Mr. DuBois, in 1840, to Susanna Eckfeldt, the sister of his chief. I shall have to speak of published works and scientific communications appearing under the names of Eckfeldt and DuBois. Although it was understood that Mr. DuBois was the sole literary author, yet no separate claim of authorship was made by either. Whatever of reputation was earned, each was contented that it might be shared by the other, and jealousy never for a moment weakened a union that bound them for life.

A variety of circumstances gave importance to the Assay Department of the Mint during the service of Mr. DuBois. Most of these he has himself, in rapid summary, and with engaging style, set before us in his obituary notice of Mr. Eckfeldt read before this Society. Considering how intimately he was associated with his chief in the labors of that time, the details thus given were in large part auto-biographical, and I shall briefly recall them as appropriate to this obituary notice.

In the year 1834, a change took place in the ratio of gold to silver in the standard of U. S. coins, the effect of which was to bring large deposits of gold to the Mint. The coinage previously had been chiefly of silver. The more equal supply of the precious metals gave active employment in the assay of each of them, and was of course most valuable as an experience to Mr. DuBois, who about this time became connected with the Assay Department.

In 1837, on a revision of the Mint laws and standards brought about by

Dr. Robt. M. Patterson, then Director, a reform was effected in the method of reporting assays, the millesimal system taking the place of the time-honored but cumbrous method of carats and grains. About this time, also, the older plan of assaying silver was abandoned, the humid assay being substituted, and largely worked under the direct supervision of Mr. DuBois.

About 1838, Branch Mints were organized in the States of Louisiana, Georgia and North Carolina. The labors and responsibilities of the Philadelphia assay department were increased by this development, partly from the necessity of instructing assayers for the new branches, and partly in testing the correctness of the assays made there.

In 1848, the great discovery of gold in California was made known. This brought a tremendous pressure on every department of the Mint, and not the least on the Assayers. The gold coinage was in three years raised from a little over three million dollars to more than sixty-two millions. The assays were often counted by hundreds in a day. But whatever the pressure in the office, accuracy ruled, and the correctness of the assays was never impeached.

In 1853, a change was effected in the law for providing subordinate silver coins. This brought about, for some years succeeding, an unprecedented coinage of that metal, and still further increased the labors of the Assay Department.

Shortly after, a minor coinage, in part of nickel, was established, and the assay of that metal became a part of the routine of the department. The determination of nickel alloys was not well laid down in the books, and the assay was troublesome, but all difficulties were overcome, and a practical method introduced. A bronze coinage afterwards followed, calling for further assay processes.

Finally, and after Mr. DuBois became principal Assayer, in 1872, followed the heavy coinages of gold as a consequence of the Resumption Act, and of silver under the Silver Act of 1878. These, while they brought heavy labor and responsibility on the Assay Department, involved nothing new in the methods, and only served to test the accuracy and system of the office while placed in his charge.

This review points to the occasions, connecting Mr. DuBois most directly with the Mint by his official action. But he was not content with the performance of routine duty. More than once he has quoted as a rule of action a saying of Paley, that "a life without employment is a life not worth living." He was, indeed, never idle. We might infer that the harassing labors of an Assayer would prove sufficiently absorbing. Yet not long after he entered the Assay Department, Mr. DuBois found, or made, the time for engaging in other tasks.

One of these was the foundation of the Cabinet of Coins which now adorns the Mint. This was commenced in 1838. A small annual appropriation was procured from Congress for this purpose, and the work of collection committed entirely to Mr. DuBois. He brought to it all the

enthusiasm which animates most numismatists, sobered, however, by good judgment. His expenditures were always judicious. Some of the best of the specimens were culled from the Mint deposits for the bullion value merely of the pieces. After the collection had taken good shape, and been well classified, he wrote and published in 1846, a description of it, under the title "Pledges of History," &c. The title thus selected intimated his opinion as to the real value of such collections. He thought that a coin should be prized for its historical teaching, or artistic merit, and discouraged the rage to possess a piece simply because of its rarity. Mr. DuBois acted as Curator of the Cabinet until his death. It falls short of many other collections in numbers, but is so well selected and arranged that it holds high rank in the estimation of good judges. The study of numismatology thus begun in his youth he continued to the last, and was ranked as among the chief masters of the science in our country. He added to it a special study of counterfeits, in the detection of which he became an expert, and was able to give much valuable information to the public.

Another important labor undertaken by Mr. DuBois (in connection with Mr. Eckfeldt) was the preparation and publication, in 1842, of a "Manual of the Gold and Silver Coins of all nations, struck within the past century." This was a work of very great labor, and, from its expense, of some risk also, to the authors. It is admirably arranged, the information clear, and it embraced every subject of interest at that date as to coins, bullion, counterfeits, &c. Subsequently, in 1850 and 1851, supplements were published covering later topics, made prominent in consequence of the California gold discoveries.

Apart from the above more ambitious works, the occasional writings of Mr. DuBois were numerous, and continued up to the year of his death. His papers on Numismatics were frequent and always attractive, his last appearance in print being in April of this year, in an article on "The Coinage of the Popes." To the "American Philosophical Society" of which he was elected a member in 1844, he made various communications, on behalf of Mr. Eckfeldt and himself, mostly on topics suggested by experiences in the Assay Department. Among the most curious was one on "The Natural Dissemination of Gold," by which we were astonished to learn that this precious metal is found in appreciable quantity in the clays underlying our city.

In 1869, he wrote, for the Banker's Magazine, "Propositions for a Revised System of Weights, and a Restoration of the Silver Currency." The development of his views on these subjects is a model of clear exposition, and the conclusions reached were such as might be expected from a mind aiming to attain practical results rather than to impose visionary theories. The time may yet come when these views, in whole or in part, will be embodied in legislation.

I refer, with some hesitation, to other writings of Mr. DuBois, since they were privately printed, and carefully reserved from the public eye. These

were Genealogical Records of his father's and mother's families. It has been well said by Daniel Webster, that "men who are regardless of their ancestors and of their posterity are apt to be regardless of themselves. Our ancestors belong to us by affectionate retrospect ; our descendants by affectionate anticipation." Some such sentiment must have encouraged Mr. DuBois in the labor involved in the preparation of these Records. They were written with perfect good taste and truthfulness, and set a good example in a branch of literature then novel, but in these latter days not uncommon.

I have now traced the principal occasions bringing Mr. DuBois before his fellow-men, but cannot bring this notice to a close without referring to some other particulars, bearing upon his character as an officer and a man.

From the beginning he was highly esteemed at the Mint. It was his ambition to acquire a knowledge of every branch of the service, and with his capacity and opportunities this end was attained. He early became the trusted friend and counsellor of his colleagues, and was able to serve them in many ways, perhaps most of all with his ready pen. As time passed, and forty-eight years of experience was given to him, he was recognized by all as the Nestor of the Mint service.

And here I pause to draw a lesson, from the example of Mr. DuBois's life, as to the value of a properly organized civil service. In the department with which he was connected, political tests were never obtruded, and permanence of tenure followed on merit. On no other basis could his services have been claimed or retained. They would have been transferred to a private sphere, probably to his pecuniary gain, certainly to the public loss. Under a more rational policy, he was content to give to the Government the devotion of a life-time. Proud of the service in which he was engaged, he sought to fix it at a high standard. If he lent it reputation by his labors and varied talents, he felt that this was for himself a sufficient reward. And he sought further to elevate the service through the new men brought into it, giving to their instruction an intelligence and patience which they gratefully remember. But if he spared not himself, and gave freely of his time, his talents, and his experience, he was nevertheless sparing for the Government, cautious in public expenditure, scrutinizing the smallest details, and never permitting an extravagance.

We have seen that Mr. DuBois appeared on many occasions as an author. It is to be regretted that these were not more frequent, for his style had singular merit. Whatever was the matter treated, he attracted and held you to the end. There was a certain quaintness, a vein of humor, which cropped out in the most unexpected way, and all the more charming from the contrast with the otherwise dry theme under discussion.

In personal appearance Mr. DuBois was tall and spare, showing marks of the delicate health to which he was subject from early manhood. His features were regular, his eyes dark and brilliant, his countenance habitually grave, but easily lighted to kindly expression in the intercourse with friends. He was deterred by the vocal difficulty, of which I have spoken,

from seeking society, but he enjoyed it when it came in his way, was a good listener, observant, and with a keen sense for the humorous side of things. He was very accessible, and ever ready to lend aid from the stores of his knowledge, but in particular did he delight to instruct and bring forward his younger friends.

I am happy to close this notice by speaking of the deep religious faith of this dear friend. Before reaching manhood, he consecrated his life to the service of God, through Christ, and never afterwards wavered in his trust. His belief was to him a source of perennial joy, and he did not fail in the duty of trying to bring others to share in the faith which was the life of his life. No stress of labor, no ordinary worldly interests, checked the spiritual meditations of this earnest man. Since his death there have come to light, before kept secret from his own family, volumes covering a period of nearly fifty years, embodying mainly his religious thoughts, and laying bare his soul. I confess that it is with a certain awe that I have read these utterances, voiced as it were from the grave. Here the whole man is seen, and the completeness of his character made clear.

Mr. DuBois was able to fulfill his official duties until within a few months of his death. He was fully conscious of his approaching end, preserving his intelligence to the last, and the faith which had comforted him in this life supported him at its close. He left surviving him a widow, two sons, and one daughter, who have in the memory of his well-spent life a blessed inheritance.

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*Note on the Laramie Group in the vicinity of Raton, New Mexico. By John J. Stevenson, Professor of Geology in the University of the City of New York.*

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Raton, New Mexico, is an important station on the Atchison, Topeka and Santa Fé Railroad, at about five miles south from the Colorado line. It stands on the Canadian plain immediately south from the basalt-capped Raton plateau (the Chicorica mesa of Hayden's map of Colorado), and at the foot of the Laramie bluff, which forms the western boundary of the plain. The cañon of Willow creek, followed by the railroad from the Colorado line, opens at little more than a mile north from Raton. Dillon's cañon and that of the Upper Canadian open together at barely two miles south-west from the station, while petty cañons notch the face of the bluff at irregular intervals.

The lower beds of the Laramie group are fairly well shown at many places along the bluff as well as near the mouths of the larger cañons. During 1881, the Atchison, Topeka and Santa Fé Railroad Company made extensive examinations of the *Dillon coal bed*, *coal bed A* of the writer's generalized section, which exhibit the structure of the bed far better than